UNITED STATES PATENT OFFICE.

HELEN A. BLANCHARD, OF BOSTON, MASSACHUSETTS.

IMPROVEMENT IN SEWING-MACHINES.

Specification forming part of Letters Patent No. **141,987**, dated August 19, 1873; application filed June 19, 1873.

To all whom it may concern:

Be it known that I, HELEN A. BLANCHARD, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Sewing-Machines, of which the following is a specification:

Figure 1 of the accompanying drawings is a top view of the front portion of a sewing-machine with the top plate removed. Fig. 2 is an end view, looking from the left of Fig. 1, and with the frame of the machine removed. Fig. 3 is a vertical longitudinal section, showing a side view of the front portion of a sewing-machine, with the top plate and half of one side of the frame removed. Fig. 4 is a perspective view of a part, in detail, of my invention.

The present invention relates to certain new and useful improvements in sewing-machines, having for their principal object the forming of an overstitch that may be adapted to either fine or coarse work. My improvements consist, mainly, of a series of mechanical devices connected with a sewing-machine, and arranged and operated as will be hereinafter more fully explained, so as to give a progressive and lateral movement to a feed, to place the material so that the needle will descend through and then outside of the work, so as to form an over or button-hole stitch. These improvements also consist in a device, arranged and operated as will be duly described, for varying the depth of the stitch, so as to be used for fine or coarse work, and of a device for disconnecting the operation of my improvements to allow the ordinary working of the machine for its customary sewing.

In the drawings, A represents the lever or rocker-bar, connected with and operated by the shaft of a sewing-machine, and in my improvement is elongated forward, so as to form an arm having at the end an upward flange, *a*, to which is pivoted the lower portion of a vertical arm, B, Fig. 4, whose bottom is situated a sufficient distance above the top of the lever A to allow of the admission and action of a friction-spring, C, whose forward portion impinges against the bottom of the arm B, and which is attached at the rear to the top of the lever A. The arm B is curved outward on the face and back, at the bottom, to admit a fulcrum-screw, *b*, and is curved and tapered upward on the back, or is otherwise shaped, to form a thin edge at the top, so as to readily engage with the bottom of a curved pawl, D, that has projecting on the inner side, at the top, a dog or stem, *d*, arranged to travel back and forth longitudinally in a notch, *c*, formed in the top of one end of a longitudinal sliding plate, E, formed with slots *e*, which receive screws or stems *f*, that allow the travel of the plate E and hold it to the side of the shuttle cap or plate F. Projecting laterally from the outside of the forward end of the shuttle cap or plate F is an arbor, G, connected with the frame H of the machine, and provided with a spiral spring, *g*, and a washer, *g'*, which is, by the action of the spring *g*, pressed against and so as to hold in place the pawl D, which is located so as to turn on the arbor G. The bottom of the pawl D is curved and notched, as shown at *d'*, Fig. 4, so as to form a sort of double cam with a central downward-extending curved tongue, *d''*, against which the top of the arm B is made to impinge alternately on either face, and abut against the notch *d'* on either side, so as to throw the pawl D and its dog *d* forward and backward. The forward end of the sliding plate E is formed with a lateral outward-extending plate or flange, I, formed with screw-threads to receive a screw, K, that passes through the top of a curved friction-spring, *h*, attached at the bottom to the inside of the frame H, and extends through and beyond the outside of the frame H, where it is provided with a suitable thumb-nut, K'. Extending through the lower portion of the spring *h* and the frame H is a screw, L, provided on the outside with a suitable thumb-nut. The other or inner end of the plate E is curved upward, and notched out on the top, as at *k*, Fig. 3, to receive and carry, as well as to allow the usual play of, the feed-bar M of the machine, the bridge N of which has the width of its slot N' enlarged a little to allow of the lateral play given the feed-bar by the operation of the slide E. To the bottom of the presser-foot O is attached, by a screw, *l*, an adjustable curved foot-plate, *p*, for the purpose of more firmly holding the work. The function of the spring *h* is to aid in adjusting the slide E, so as to bring the feed to its original working position